



Stephen Moore – General Manager



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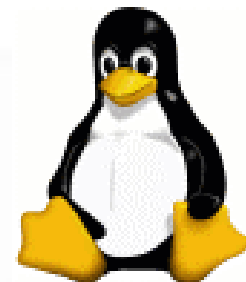
Taipei February 14-15, 2001

TUXIA Overview

- TUXIA's Mission
- All about TUXIA
- Linux Advantages
- TASTE Key Benefits
- TASTE Explained
- TUXIA Services
- TUXIA's Business Model
- TASTE Futures

TUXIA's Mission

To provide the very best
Internet-enabled Linux
software for Information
and Internet Appliances



TUXIA Facts

- Leaders in Thin Client technology
- Embedded Linux expertise since 1993
- Over 90 employees worldwide
- Over 50 software developers with expertise in embedded software (Linux, Mozilla , Netscape, JAVA)
- Worldwide presence EMEA, US, APAC, Japan
- Development team spanning four continents
- Developers of TASTE:
TUXIA Appliance Synthesis Technology
Enabled

Linux Advantages

- Faster time-to-market
- Flexible and versatile
 - Support for all major hardware platforms
 - Easily adaptable to diverse implementation scenarios
 - Virtually unlimited device support
 - Broadest possible network connectivity
- Comprehensive third-party support
 - Large, fast growing application pool
 - Vast, un-tethered global developer community
- Open, modular architecture
- Natively stable and robust

TASTE Key Benefits

- TASTE is the smallest, fully desktop compatible embedded Linux
 - Based on standard libraries
 - Fast and easy integration of virtually all standard components
 - Conforms to standard file structures
 - Faster time-to-market
 - Effortless integration of in-house developed and 3rd party applications
 - Native Mozilla and other Browsers
 - Choice of fully-featured or footprint-optimized Java Virtual Machine
 - Supports all standard Plug-Ins
 - Compliant to UNIX System V standards

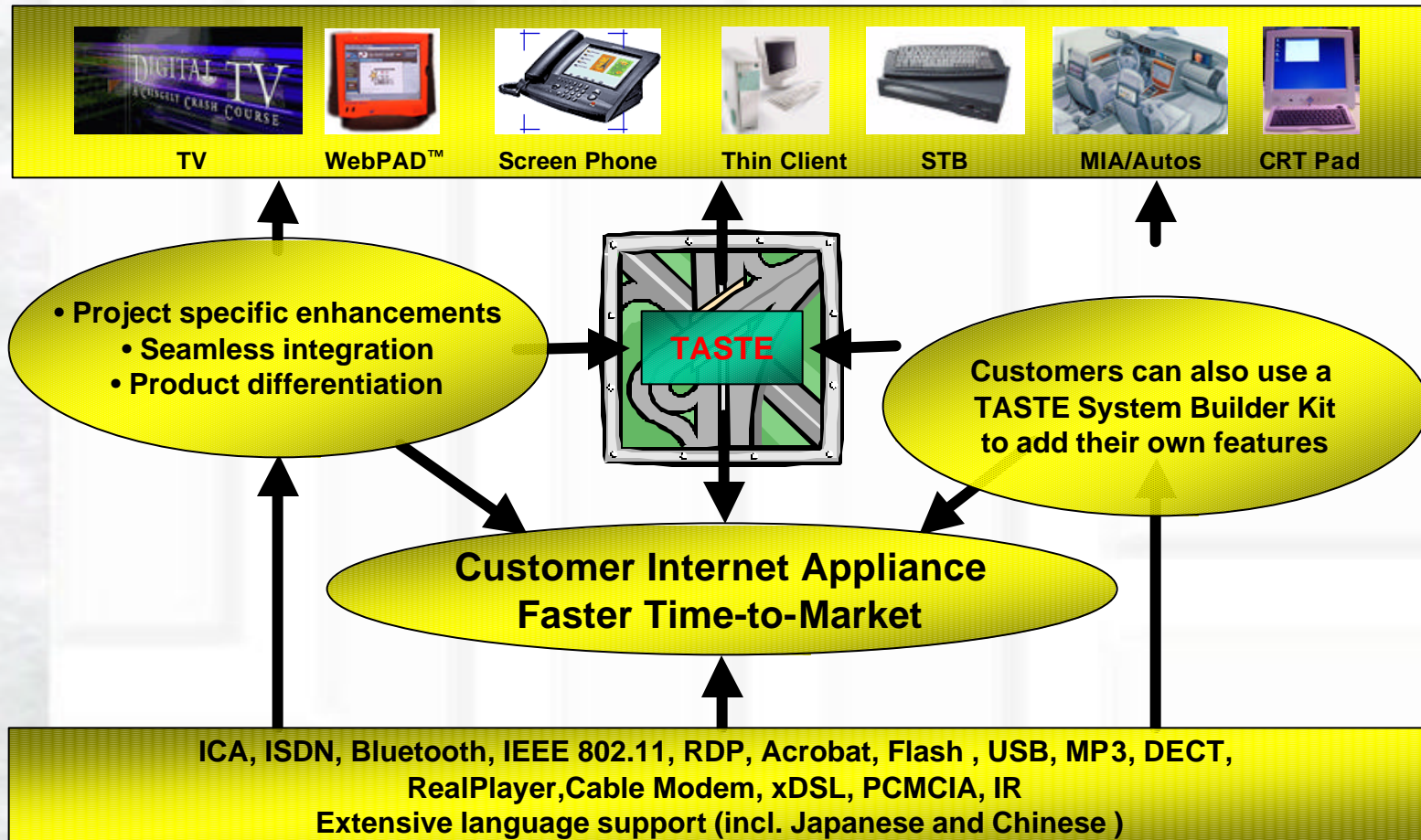
TASTE Key Benefits

- More secure and more stable platform
 - Bulletproof flash file system
 - Read-only user access to file system:
 - Eliminates user errors
 - Controls program errors
 - Provides virus protection
 - Writeable file system space enabling unmodified application execution
 - Tight compression minimizes flash requirements
 - High performance
 - Extremely robust, fault tolerant field upgrade mechanism
 - Linux-based System Builder Kit
 - Efficient
 - Stable, mature platform
 - Fast, effortless application integration
 - Inexpensive

TASTE Key Benefits

- One-stop, complete turnkey solution
 - Kernel
 - TUXIA enhancements
 - Middleware
 - In-house developed applications
 - Third-party applications
 - Open source applications
 - Mozilla and other Browsers
 - Widest possible variety of Plug-Ins
 - TUXIA has the largest Mozilla development team outside Netscape

TASTE Overview



TASTE Architecture

Applications

(TUXIA / Open Source / Customer / 3rd-Party)

Java Virtual Machine

(Third Party / Open Source)

X-Server

(TUXIA / Open Source)

or

Framebuffer

(TUXIA / Open Source)

Linux-Kernel

(TUXIA enhanced Open Source)

Hardware-dependent drivers

(TUXIA / Open Source)

Complete Software Stack for TASTE

TUXIA Appliance Synthesis Technology Enabled

- TUXIA provides turnkey packages for virtually all Internet Appliances
 - Reference Platforms:
 - Thin Clients
 - Settop Boxes
 - WebPADs™
 - Screen Phones
 - CRT Pads
 - Information Kiosks
 - All packages feature a common TASTE core code base and are individually optimized for your specific application



TASTE Common Core Code Base

- Latest available Linux kernel (Kernel 2.4 ready)
- Standard libraries (e.g. LibC6)
- Special boot loader
- Special initialization
- Central single file setup
- Field upgrade ability (fail proof)
- Secure file system featuring up to 3:1 compression
- Set of standard Linux tools



**In < 2 MB
Flash!**

Targeted TASTE Architectures

- TASTE delivers superior platform support
 - National Semiconductor Geode™ Family
 - MediaGX, GX1, GXLV,
 - New SC1200, SC2200, SC3200 processors
 - AMD K6™, K7™
 - Hitachi SuperH™ SH-3 and SH-4
 - Intel® 486, Pentium® II, Pentium® III, Pentium® 4 and Celeron™ Processors
 - MIPS®
 - NEC
 - PowerPC™
 - STPC®
 - StrongARM*
 - Transmeta Crusoe™
 - TriCore™
 - X86-compatible processors

Benefits of x86 based platforms

- Wealth of tools and availability of engineers
- Compatibility with the latest applications, applets & plug-ins – Which means a full Internet experience
- Benefits of all National's Geode solutions:
 - Minimum power requirement and boot-up time
 - Minimum amount of memory requirement
- OPTIMISED FOR INTERNET APPLIANCES



TASTE Feature Set

- TASTE is an open, fully customizable embedded Linux solution
 - Powerful, modular and robust operating system
 - Common core code base for diverse application scenarios
 - Thin Clients
 - Screen Phones
 - Settop Boxes
 - WebPADs™
 - Information Kiosks
 - CRT Pads
 - Automotive Applications

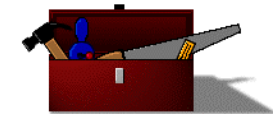
TASTE Feature Set

- TASTE provides virtually unlimited hardware device support
 - Well over 20 distinct storage types possible including several different flash systems
 - Hundreds and hundreds of graphics cards and chips and TV-Out
 - Support for all leading network adapters and connectivity options:
 - Ethernet & Token Ring
 - PCMCIA
 - Wireless LAN
 - ISDN & Analog modems
 - xDSL
 - Cable Modems
 - Connectivity over Parallel (both EPP & ECP), Serial, Infrared and USB port

TASTE Feature Set

- Mozilla and other browsers with full Java Virtual Machine, JavaScript and Plug-In support (Acrobat, Flash, MP3, RealPlayer,...)
- Fully customizable user interface
- Extensive developer community support
- Standard libraries and complete development environment
- TASTE System Builder Kit for effortless adaptation and integration
- Extremely reliable update mechanism with roll-back capabilities
- Source code readily available for extensibility or customization

TASTE Builder Kit



- TASTE Builder Kit
 - Toolkit for adapting and integrating applications and hardware drivers
 - Enables a customized software suite to best fit each target market
 - Fast, effortless embedding of specific software modules and applications including:
 - Open source components
 - In-house developed software
 - Third-party applications and modules
 - Linux-based
 - Intuitive Graphical User Interface
 - Easy point-and-click image creation

The TASTE Experience

- TASTE enables a richer Internet experience
 - Full integration of Mozilla or other browsers:
 - JAVA Virtual Machine & JavaScript
 - HTML 4.0
 - 128-bit SSL for secure transactions
 - Choice of web-based or integrated email clients
 - Unparalleled multimedia and plug-in support:
 - Streaming Audio and Video formats including RealNetworks
 - MP3 Player
 - Adobe Acrobat Reader, Macromedia Flash Player
 - Terrific Connectivity
 - Citrix® ICA® Client, TUXIA RDP Client
 - Native Linux support for load balancing to backend systems

TASTE Applications

- Samples of possible TASTE Packages:
 - TASTE Thin Client Package
 - TASTE Settop Box Package
 - TASTE WebPAD™ Package
 - TASTE CRT Pad Package
 - TASTE Information Kiosk Package
 - TASTE Screen Phone Package
- Tool for adaptation and integration:
 - TASTE System Builder Kit



TASTE Thin Client Feature Set

- Graphical setup tool
- Fully featured X-Server and Window Manager
- Extensive international language support
 - All western European languages
 - Simplified and traditional Chinese language
 - Japanese language
- Optional Components:
 - Mozilla or other Browsers
 - Citrix® ICA® 6.0 Client for MetaFrame™ / WinFrame® connectivity
 - Citrix® Device Services
 - TASTE RDP Client for Windows Terminal Services connectivity
 - Kiosk mode and Touch-screen support



TASTE Thin Client Feature Set

- Optional Components:
 - Emulations
 - ANSI, VT320
 - IBM 3270E, 5250E
 - Siemens 97801
 - Wyse 60
 - ThinPrint
 - UniCon Remote Administration Tool



TASTE Thin Client Futures

- SmartCard support
- Voice over IP (H.323)
 - Analog, ISDN, and xDSL Gateways
 - Gatekeeper mini-firewall
- User Authentication
- User Management
- Remote Management
- TASTE RDP-only package
- Additional language support (Korean,...)



TASTE Settop Feature Set

- Browser with Java Virtual Machine & TV-optimized User Interface (Mozilla and Netscape)
- Highly compressed, minimized Flash RAM utilization
- Graphical setup (ISP & Browser settings)
- Zoom function and panning
- Picture-in-Picture (hardware dependent)
- Unique ID-String, which can be transferred to every IP-connection



TASTE Settop Box Feature Set

- Plug-Ins:
 - Adobe Acrobat Reader
 - Macromedia Flash Player
 - RealPlayer
- MP3 Player
- TV-out support
 - PAL
 - NTSC



TASTE Settop Box Futures

- TASTE Browser based on Mozilla
- Opera Browser
- Espial™ escape 4.0
- Frame buffer device
- OSGi
- User defined skins
- DVB Application
- Electronic Program Guide
- DVD
- VoD
- Video for Linux integration
- Streaming MPEG2 Video client



TASTE WebPAD™ Feature Set

- Internet Browser
 - Customizable User Interface
 - Selectable language and keyboard settings
 - Smart or Normal Mode
- Virtual Keyboard
- Field Strength Meter
 - DECT
 - IEEE 802.11b Wireless LAN
- Setup Tool
 - Wizard for initial setup
 - IP via DHCP, Fixed IP, Proxy & DNS settings
 - Gateway & Dial-up settings
 - Start page & search engine entries



TASTE WebPAD™ Feature Set

- Touch Screen calibration
- Power Management Settings
- System Update Settings
- Optional Plug-in's & Add-on's
 - Adobe Acrobat Reader
 - Full-fledged Email client
 - Macromedia Flash Player
 - MP3 Player
 - RealPlayer



TASTE WebPAD™ Future

- TASTE Mozilla-based Browser, Email Client & Address Book
- SmartCard support
- Handwriting Recognition
- Voice Recognition
- User-defined skins
- H.323 Voice over IP
 - Foundation for interoperability of audio, video, and data communications across IP-based networks
 - Supports point-to-point and multipoint conferences
 - Multimedia and Application Interoperability incl. NetMeeting



TASTE Mozilla Development



- Modular, open building block architecture vs. monolithic solution
- Freely configurable, compact components
- Integration of open source and in-house developments
- Choice of Java Virtual Machines
 - Feature rich
 - Small footprint
- Wide variety of Plug-Ins
- Gecko Layout and Rendering Engine
- Extremely fast screen rendering
- Displays entire screen contents including the Chrome

TASTE Mozilla Development

- Enables creation of a mail client or other applications featuring a seamless, browser identical interface
- Customized context menus
- XUL Extensible User Interface Language
 - XML-conformity
 - Freely configurable GUI for customized applications
 - Menu Lists and Menus
 - Toolbars and Toolboxes
 - Tabs
 - Color Picker
 - Progress Meter
 - Scroll Lists
 - Trees
 - Broadcaster and Observer



TASTE Mozilla Development

- Platform Independent:
 - Linux
 - BeOS
 - MacOS
 - Nokia – core for Web application development
 - OS/2
 - UNIX
 - Windows



TASTE Mozilla Development

- Mozilla standards compatibility
 - HTML 4.0
 - CSS 1 / CSS 2 (partial)
 - DOM
 - Level 0
 - Level 1 Core / Level 1 HTML
 - XML 1.0
 - RDF
 - JavaScript 1.5
 - ECMA Script
 - XSL / XSLT planned - dependent standards approval process
- "Mozilla is currently the only browser correctly rendering the feared browser buster websites!" Claus Augusti, Linux Enterprise, Aug./Sept. 1999



TASTE Business Model

- TUXIA Per Device Service Fees and NRE fees for TASTE
- TASTE common code base of all packages
- Quality
- Service & Support
- Research & Development
- 3rd Party Licenses
- Customizing
- Ongoing update protection/ software maintenance
- Time to market
- Channel development
- OEM, ODM and VAR's

TASTE Future

- Ongoing TASTE enhancements:
- Kernel 2.4 (upon availability)
- New application packages:
 - Automotive package
- TASTE Browser based on Mozilla / Gecko
- New hardware ports
- Smaller Flash footprint
- Lower RAM requirements
- JVM for Framebuffer interface



Additional Information

- For additional information please contact:-

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